

MONTHLY STATUS REPORT
OPERATION WIGWAM

427 #0011640

Report No. 4

Date 1 December 1954

DNA1.941031.009

Project No. 2.4

Project Title: Determination of Radiological Hazard to Personnel

Period of Report: From 1 June 1954 To 1 December 1954

12048

Project Officer's Signature

M B [Signature]

Program Director's Signature

*[Signature]*Program Director's Comments

This status report has been reviewed jointly by the Program Director and the Deputy Program Director who concur in the statement of status.

In aerial survey the requirement of Project 2.1 for dropped temperature telemetering devices was deleted at the November 19 meeting at TG 7.3. Therefore, the aerial survey is no longer geared to handle this.

The aerial survey operations plan is being coordinated with Project 2.1. It is expected that a detailed plan will be formulated following the January trials.

CLASSIFICATION (CANCELLED) (CHANGED TO)
BY AUTHORITY OF OPNAV 553,16 ON
DATE: 17 OCT 94
SIGNATURE: *[Signature]*
RANK: GM-15, N 86D
DEPT OF NAVY
CNO

Enclosures:

- A. Experimental Plan
- B. Personnel Requirements
- C. Office and Laboratory Requirements
- D. Communications, Telemetering and Timing Requirements
- E. Vehicle and Small Boat Requirements
- F. Courier and Sample Return Requirements
- G. Photographic Requirements
- H. Storage and Work Space Requirements
- I. WIGWAM Reports
- Program and Project Personnel Clearance Data

This document consists of 1 pages.

This is copy 4 of 14

Encl (2) to CO USNRDL Secret ltr 3-901-985 BAS:ls
Ser #0011642 of 19 DEC 1954

HRE--0843

1 December 1954

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EXPERIMENTAL PLAN

1. Method of accomplishment of Project:

a. Experimentally

To determine the radiological hazard to personnel on board ships traversing a zone of water contaminated by a sub-surface nuclear detonation, a sub-surface contaminating event will be intercepted, if possible, at various post-detonation times, i.e., H & 9 to H & 240 minutes and later, by aircraft; and H & 35 minutes through H & 5 hours, by ship (YAGs 39 and 40).

Shipboard measurements will be made of the water temperature, gamma intensity and the specific activities of the sea water as functions of location and time; of gamma intensity at specific stations both inside and outside the hull of a test ship traversing the contaminated area; and the residual contamination on the hull and the exposed surfaces and equipment of the ship. The effect of the "washdown" system in a situation of this nature will be evaluated. The effectiveness of tactical decontamination methods and protective coatings will be determined. Fundamental studies of contamination-decontamination phenomena associated with the expected contaminant will be conducted.

The test ships will also provide platforms for mounting equipment for Projects 2.1 and 2.7, and will collect water samples for Projects 2.2, 2.3, 2.6, and 4.3.

Airborne equipment provided by NYOO-AEC will be used to determine the size and gamma intensity of the contaminated water. The aircraft used for this survey work will provide a platform for Project 2.1 temperature determinations. Both the gamma intensity and the temperature data will be facsimile transmitted to the Program 2 central plot on the AGC-7. Radio telemetering equipment will be dropped from the aircraft as soon as the radiological situation permits. Water samplers and automatic recording bathythermographs will also be aircraft dropped in accordance with the requirements of Project 2.1. If airborne contamination should collect under the inversion layer, its location and intensity will be determined with aerial survey equipment. On H & 1 day or when the radiological situation permits spectral analysis equipment provided by NYOO-AEC and installed in a helicopter will be operated over the contaminated area to determine the gamma photon spectra at various altitudes.

b. Preparation Plan

Test ship modification and instrumentation will be accomplished at San Francisco Naval Shipyard in accordance with the following approximate schedule:

A. Complete all design specifications for modifications - 15 Oct 1954

B. Ship alteration and repair:

Start	15 Oct 1954
Complete	1 Mar 1955

This document consists of 6 pages.

This is copy 4 of 14 Series ---

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Enclosure A
Project No. 2.4
1 December 1954

C. Instrument installations:

Start 1 Feb 1955
Complete 15 Mar 1955

D. Trial runs and training in ships operation; instrument calibration; functional check of all experimental equipment; ATF will report to SFNS for duty with YAGs:

Start 1 Mar 1955
Complete 1 May 1955

Two AD-5 type aircraft will be equipped with the aerial survey and bolometer gear. The third aircraft will be equipped with the necessary brackets and power connections to accommodate the aerial survey gear in the event one of the first two aircraft is grounded. A helicopter may require modification to accommodate the gamma spectrum equipment provided by NYOO-AEC.

The anticipated preparation schedule is as follows:

E. Complete design and fabrication of test equipment: 1 Mar 1955

F. Accomplish modifications and equipment installations at NAS Alameda on AD-5N aircraft and the helicopter. Release helicopter when work is completed until H + 1 day:

Start 1 Mar 1955
Complete 1 Apr 1955

G. Aircraft proceed to Indian Springs, AFB and install the aerial survey gear to check installation details:

April (3 days only - specific date to be determined later)

H. Aircraft at ANAS - practice dropping of USQ-1 equipment - re-check of special installations:

Start 1 Apr 1955
Complete 15 Apr 1955

I. Aircraft report to NAS San Diego for checkout of bolometer, practice dropping of samplers, and first "cold" run on position plot with AGC and DDR's:

Start 15 April 1955
Complete 2 May 1955

J. Aircraft to Indian Springs AFB to pick up equipment, return to San Diego (tentative requirement):

Late in April (1-2 days only)

#0011640
Enclosure A
Project No. 204
1 December 1954

K. Aircraft report to CVL for final "cold" runs and participation in operation:

Start	2 May 1955
Complete	18 May 1955

Parking space will be required for three (3) AD-5 type aircraft at NAS San Diego from 15 April 1955 to 2 May 1955.

Space will be required in Program 2 plot on the AGC for two chassis 17"x13"x 8" and recorders for receiving the facsimile data. The number and dimensions of the recorders will be supplied when the information is available. Space is also required to install the AN/ARR-29 receiver for the radiac telemetering units at a location where suitable radar is available. In accordance with the suggestion of the Communications Officer, T.G. 7.3, presently installed shipboard radars on the AGC-7 are being investigated to determine their suitability for use with the AN/ARR-29 receiver.

Two transmitters of the Motorola type will be required to transmit the facsimile data from the aerial survey aircraft to the central plot on the AGC-7. It is requested that the Task Force supply these transmitters.

Two CVL based helicopters equipped for voice communication with YAG 40 will be required on-site. These are the sample recovery aircraft and will be assigned exclusively to this duty. Although only one helicopter will be required for actual pick-up of samples from the YAG 40, a second will stand by for duty in the event of mechanical or other difficulties. These aircraft will also be used should emergency removal of operating personnel from the YAG 39 or 40 become necessary.

Numbers and movement of personnel are shown in Enclosure B. Also included is the preliminary roster.

During the operational period, it is requested that helicopter transportation be provided the Project Officer, Project 2.4, as follows:

- A. At approximately H + 65 min - YAG 40 to CVL (Sample return helicopter to be used)
- B. At approximately H + 90 min - CVL to AGC-7
- C. At approximately H +150 min - AGC-7 to YAG-39

Equipment shipments will be made to San Diego as follows (date is ETA San Diego):

A. Facsimile receiving and recording equipment for installation in Program 2 central plot on AGC; 500 lbs; 1 April.

B. USQ-1 equipment for stowage on CVL; 1000 lbs; 20 April.

C. AAR/29 for installation on AGC; 200 lbs; 1 April.

D. NYOO radiation detection equipment for stowage on CVL and/or AD-5 aircraft (may be flown directly from Indian Springs AFB); 1000 lbs; 1 May (latest).

E. C-D equipment for stowage on CVL; 500 lbs; 15 April.

c. Operational Plan

The ships at about H - 2 hours will debark most of crew and technical staff (approximately 12 men will remain aboard each ship) at some point downwind from surface zero (SZ). As shown in the accompanying diagram, at shot time the ships will be at 5 miles from surface zero travelling at approximately 10K. All personnel will be at assigned stations throughout the ship. After arrival of the shock, ship equipment and instrumentation will be inspected and adjusted. If serious damage has occurred, the test runs can be postponed for repairs or personnel can be debarked to a tug and the ships controlled by radio from the tug (the latter procedure would result in about a one-hour delay in transit). However, it is planned to remain at what is considered to be a safe distance from surface zero, even if this means slightly later entry. By the time the ships are 2 miles from SZ, all personnel will be in the control room.

Ship speed will be reduced to approximately 5K to allow longer time in the contaminated area. The washdown system on YAG 39 will be turned on. As the ships enter and pass through the contaminated area, all personnel will remain in the control rooms. The ships will pass through surface zero at H + 41 minutes and will proceed to a position 2 - 3 miles from SZ. The washdown system on YAG 39 will remain on until no more reduction in radive field is required or is being obtained. Technical personnel on YAG 40 will transfer collected samples to flight deck, and will check operation of automatic counting and sampling equipment for subsequent runs. Conditions permitting, ships personnel will check ships engine room and control gear. All important interior spaces will be accessible without the necessity of going on deck. On YAG 40, the samples placed on the flight deck will be picked up by helicopter. Upon departure of the helicopter, the ships will be ready for additional passes through the contaminated area. The operational procedure will be repeated for YAG 40 for a total of 3 or 4 passes, the radiological situation permitting. Table I indicates a preliminary time table of operations. In anticipation of variation in the radiological situation alternative plans will be prepared.

After the final pass, both ships will be surveyed to determine the radiological situation. Experimental tactical decontamination as well as tests of the protective coatings will be conducted aboard YAG 39. If no significant hazard is present, relief or, possibly, full crews will be taken aboard. The YAG 39 will set course for the Z.I. and the YAG 40 will stand by for subsequent operations.

#0011640
Enclosure A
Project 2.4
1 December 1954

In the event that either or both of the ships require decontamination before returning to the Z.I. or participating in subsequent operations, alternative action may be taken, depending on the extent of the radiological hazard. If the dose rate is low, necessary decontamination will be accomplished by the ship's crew enroute. If the dose rate is high, decontamination will be performed by other enlisted personnel supplied by the Task Group and directed by Project 2.4. In this latter event, the crews of the YAGs 39 and 40 will continue to be quartered on other ships until such time as the work of decontamination is completed.

To provide for possible emergency removal of personnel from the ships subsequent to the detonation, a Disaster Bill must be prepared. In view of the relatively few persons who would be involved, rescue by helicopter is indicated.

The Task Group Air Officer will prepare a complete operating schedule for the aerial survey aircraft which will enable them to rendezvous sufficiently in advance of H-hour to permit check out of communications, familiarization with the target array, etc.; complete their test objectives and return to their bases. A proposed tentative time table of Aerial Survey Operations and a maneuvering plan are included as Table 2 and Figure 5. This will be revised as the details are worked out.

The aircraft will be on a course at shot time that will allow visual observation of the surface and above surface phenomena. If these effects are such so as to indicate the presence of no airborne contaminant, the aircraft will proceed to SZ, drop the telemetering equipment, the samplers and the BT's, and proceed with the aerial surveys. If however the presence of airborne contaminant is indicated, one aircraft will penetrate the inversion layer and fly a grid pattern to determine the location and extent of airborne contamination below the inversion layer. (This determination is important to assure the avoidance of fall-out by the Task Force vessels.) Upon dissipation of the airborne contaminant, over SZ, the second aircraft will approach SZ, drop telemetering equipment, etc., and proceed with the surveys.

Aircraft Position Data. For the survey data (both radiation field and water temperature) to be meaningful, the exact position of the aircraft must be determined at frequent intervals (say one minute). The altitude can be held accurately by the pilot and changes recorded relative to time. (An altimeter capable of indicating small differences at an altitude of 200 to 400 ft is required.) The planes can be flown on specific parallel or perpendicular courses and the course vs. time recorded (a precise ADF is required). However, to establish the geographic locations of the planes, standard shipboard radar (preferably MK. 25 or other equivalent fire-control radar) is needed to determine range and azimuth information so that it may be recorded at the intervals stated above. It is requested that the Task Force arrange for this coverage after shot time (2 min. to 4 hrs.) for two aircraft.

#0011640
 Enclosure A
 Project 2.4
 1 December 1954

All recoverable material and equipment on YAGs 39 and 40 will be returned from the test site to San Francisco Naval Shipyard aboard those ships. Equipment aboard the CV or CVL will be removed at San Diego. Shipment to NRDL will be made on completion of packing.

Aircraft will be returned to NAS, Alameda, via NAS, San Diego, on 20 May 1955. Aircraft decontamination, if any, will be performed at NAS, Alameda.

Numbers and movement of personnel are shown in Enclosure B.

e. Present Status

To date Project 2.4 is approximately 25 per cent in readiness. YAG conversion is behind anticipated schedule but no problem is expected therefrom.

TABLE I

PRELIMINARY TIME TABLE OF YAG OPERATIONS (No change from 1 Oct report except to add Item 7a as shown below)

<u>Item</u> <u>No.</u>	<u>Item</u>	<u>Time</u> <u>Start</u>	<u>Time</u> <u>Comp</u>	<u>Elapsed</u> <u>Time, min.</u>
7a	YAG 39 to rendezvous with ATF- personnel to be transferred from ATF for survey and decontamination of YAG 39.			

Exact time to be determined by
radiological situation.

TABLE II

PRELIMINARY TIME TABLE FOR AERIAL SURVEY OPERATIONS
 (To be modified later)

(Tables I & II to be modified later)

Project No. 2.4
1 December 1954

C. [REDACTED]

ENCLOSURE BPERSONNEL REQUIREMENTS

#0011640

1. Numbers of Personnel*.

San Diego Area - until 2 May

<u>Date of Arrival</u>	<u>Off.</u>	<u>EM</u>	<u>Civ.</u>	<u>Total</u>	<u>Principal Duty Location</u>
15 Apr	2	-	5	7	NAS, San Diego-Trans to CVL on 29 Apr
25 "	2	-	-	2	DDR's (1 on each)
25 "	2	-	3	5	AGC
25 "	-	-	4	4	CVL
29 "	-	-	4	4	AGC
	<u>2</u> 8	-	<u>5</u> 21	<u>7</u> 29	CVL

Afloat

<u>Ship or Array Element for Principal Duty</u>	<u>Off.</u>	<u>EM</u>	<u>Civ.</u>	<u>Total</u>
YAGs 39 & 40 (Billetted)	2		23	25
YAGs 39 & 40 (Duty only- shown as billetted on CVL)	2		4	6
CVL	2		10	12
AGC	2		7	9
DDR	<u>2</u> 10		<u>0</u> 44	<u>2</u> 54

2. See following tables for Roster.

* Mil crews of aircraft and ships are not included

[REDACTED]

Project No. 204
1 December 1954

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ENCLOSURE C

#0011640

OFFICE AND LABORATORY REQUIREMENTS

Delete all requirements.

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Project No. 2.4
1 December 1954
#0011640

ENCLOSURE D

COMMUNICATIONS, TELEMETERING & TIMING REQUIREMENTS

1. Radio Frequencies:

All requirements previously submitted have been met or modified to conform with SWFFP/973.12, Serial: 00411, WIGWAM Communication and Electronics Plan, except:

A. Modify paragraph g. Radiac Telemetering, second sentence, to read "Ten (10) frequencies in the 161-170 MC band will be required".

B. Add:

h. Voice communication. Voice communication is required between observers in aerial survey aircraft and the Program 2 Central Plot on AGC-7.

i. Facsimile Transmission of Data: CW or voice circuits will be needed to facsimile transmit data from the two aerial survey aircraft to the Program 2 Central Plot on the AGC-7 (Dr. H. Levine, NYOO-AEC, should be contacted directly for specific details and/or requirements).

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Project No. 2.4
1 December 1954
#0011640

ENCLOSURE E
VEHICLE AND SMALL BOAT REQUIREMENTS

A. San Diego

Revise to:

1. One (1) pickup truck assigned to aerial survey group at NAS, San Diego, 15 April to 2 May. Use of motor pool will satisfy other requirements between 25 April and 2 May 1955.

2. Pickup to be used primarily at NAS, San Diego to transport equipment, supplies and personnel.

3. and 4. None

B. Afloat

No change.

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U N C L A S S I F I E D

Project No. 2.4
1 December 1954
#0011640

ENCLOSURE F

COURIER AND SAMPLE RETURN REQUIREMENTS

Revise to:

1. Air transportation.
2. One (1) courier to be furnished by Project 2.4.
3. (a) Contaminated sample plates; 4 cu.ft; 100 lbs (probable radiation level; less than 100 mr/hr at 3 feet).

 (b) One (1) box exposed dosimetry film; estimated weight 100 lbs (should be segregated from radioactive shipments).
4. Destination, 3(a) and 3(b): NRDL.
5. One return only for each 3(a) and 3(b).
6. Departure time: H $\frac{1}{2}$ 12 hrs to H $\frac{1}{2}$ 20 hrs.

U N C L A S S I F I E D

Project 2.4
1 December 1954

UNCLASSIFIED

ENCLOSURE G

#0011640

PHOTOGRAPHIC REQUIREMENTS

No change except delete from paragraph C.2 the sentence: "To be
filmed, edited ..."

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Project 2.4
1 December 1954

#0011640

ENCLOSURE HSTORAGE AND WORK SPACE REQUIREMENTS

Revise requirements to:

3. San Diego Area:

A. Open storage: None

B. Covered Storage: None

C. Shop Requirements:

1. Type of shop: 200 sq.ft. for repair and maintenance of electronic equipment. Should be in vicinity of aircraft parking area at NAS, San Diego.

2. Air conditioning: No

3. Dehumidification: No.

4. On CVL:

A. Shop Requirements:

1. Type of shop: 150 sq.ft. for repair and maintenance of electronic equipment. Should be conveniently located with respect to the aircraft parking area.

2. Air conditioning: Yes

3. Dehumidification: 50% or less

4. Power outlets required:

- a. 110V/60 cycle single phase
- b. 110V/400 cycles (desirable)
- c. 28V DC (desirable)

5. Furniture: Two work benches approximately eight (8) ft. in length.

B. Work Area:

1. An area 10'x10' on the hanger deck for a small scale contamination experiment to be conducted from H-6 to H+12 hrs. Should contain a bench approximately 10' long. This area need not be enclosed.

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Enclosure H
Project 2.4
1 December 1954

#0011640

Enclosure H (Cont'd)

5. AGC-7:

A. Work Area:

1. An area (possibly in the forward radar room) will be needed to install and operate the AN/ARR-29 receiver for the radio telemetering equipment. Receiver will be connected to presently installed radar.
2. Desk or table area to reduce data.

B. Work Area:

1. Sufficient space in Flag Communications (Program 2 Plot) to install two chassis 17"x13"x8" and recorders. (Number and dimensions to be supplied later)
2. Space to install a plotting board for plotting the aircraft location data.
3. Desk or table area to reduce aerial survey and bolometer information.
4. Desk or table area to plot data from YAGs and from USQ-1 telemeters.

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#0011640

Project No. 204

PROGRAM AND PROJECT PERSONNEL CLEARANCE DATA

Month 1 Dec 54

Page 1 of 3

Complete Name Last, First, Middle Grade & Service Present Clearance Type Inclusive Dates at Site**

Hawkins, Myron B	Civ, GS-14	WA13074	12/27/50	NRDL
Bigger, Michael Motter	Civ, GS-13	WA15358	6/6/50	"
Sartor, James Dominio	Civ, GS-11	WA21341	12/27/50	"
Wellhouser, Harry Norton	Civ, GS-12	WA7430	9/13/49	"
Ksanda, Charles Fernand	Civ, GS-13	WA28346	12/13/41	"
Armstrong, Woodrow Jennings	Civ, GS-	WA26123	4/3/51	BusShips
Molumphy, George Garvie	Capt USN	WA63133	1/22/53	BusShips
Kearns, James Jeremiah	Civ,	63653	1/29/48	"
Williamson, Stanley "R"	Civ, GS-12	Top Secret	3/14/52	MINS
Vine, Frank Stuart	Civ, GS-12	WA28367	6/4/51	NRDL
Owen, Wallace Leigh	Civ, GS-9	WA13415	4/3/50	"
Lee, Hong (none)	Civ, GS-9	WA22798	2/8/51	"
Heiskell, Raymond "H"	Civ, GS-12	WA24417	3/16/51	"
Vella, Noah Joseph	Civ, GS-7	WA12545	3/21/50	"
Quay, Alfred John	Civ, GS-7	WA20616	11/30/50	"
Crew, Robert John	Civ, GS-9	WA24046	3/5/51	"
Black, Robert Harry	Civ, GS-9	WA11963	5/29/52	"
Kawahara, Francis Kanji	Civ, GS-9	WA26730	4/16/51	"
Kehrer, Willard Scott	Civ, GS-9	WA22794	2/23/51	"
Sherwin, John Cohea	Civ, GS-9	WA27007	4/17/51	"

** 3 weeks unless otherwise noted

Project 204
Month 3 Dec 54
Page 2 of 2

#0011640

PROGRAM AND PROJECT PERSONNEL CLEARANCE DATA

Inclusive dates
at Sites**

Complete Name Last, First, Middle	Grade & Service	Present Clearance Type	Date	Organi- zation
Stover, John H., Jr.	LtCdr	To be supplied	5/28/48	NBL (NRU #1)
Shelberg, Wesley Elmer	Civ, GS-13	68566	10/31/51	NRDL
Fuller, Ross Kennedy	Civ, GS-9	WA40947	7/6/51	"
Laze, William Burton	Civ, GS-12	WA33904		"
Soule, Richard Reagan	Civ, GS-11	WA1662	3/3/49	NRDL
Hibbs, George Ross	Civ, GS-8	Mil Sec	10/15/52	"
DeLambo, Nicholas Joseph	Civ, GS-9	WA5308	6/22/49	"
Finoutter, Joseph Patrick	Civ, GS-11	Sec-Mil	12/2/52	SENS
Sinclair, Kenneth Francis	Civ, GS-11	WA20875	12/5/50	NRDL
Howell, John Eason	Civ, GS-12	68535	5/3/48	"
Fischer, Walter Lester	LtCdr USN	Mil Sec	8/24/54	"
Tompkins, Edward Raymond	Civ, GS-13	WA38267	6/28/51	"
LeVine, Harris D.	Civ, GS-	27435		NYOO-AEC
Eisenbud, Merrill	Civ, GS-	To be supplied		NYOO-AEC
Graveson, Robert T.	Civ, GS-	To be supplied		NYOO-AEC
Watnick, Sidney (NMI)	Civ, GS-	To be supplied		NYOO-AEC
Gonzales, Rene Eugenio	LtCdr USN	Mil Sec	9/24/54	NRDL
Johnson, Paul Sosinski	Cdr USN	73578WA	4/16/53	NRDL
Tanner, David Smith	Ens USNR	WA83359	4/13/54	"
Alternates				
Leichter, Herbert Leo	Cdr USN	CRL2625	9/4/51	NRDL
Lilly, Robert Carl	Civ, GS-13	WA24717	12/18/50	"
Rinnert, Heinz Rudl	Civ, GS-9	WA21339	12/27/50	"
Lipancovich, Marko Ivan	Civ, GS-12	WA42170	10/4/51	"
Barry, Richard Carlton	Civ, GS-11	WA16773	5/29/50	"

REGASSIFIED

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Project 204

PROGRAM AND PROJECT PERSONNEL CLEARANCE DATA

Month 1 Dec 54

Page 3 of 3

Complete Name		Grade & Service	Present Clearance		Organi- zation	Inclusive dates at Site**
Last, First, Middle			Type	Data		
9 Unknown			To be supplied		NRDL	
1 Unknown			To be supplied		BuAer	
5 Unknown			To be supplied		SFMS	

MAXIMUM NO. OF PERSONNEL AT SITE AT ANY ONE TIME
OFFICERS 6 EM 0 CIVILIANS 18 TOTAL 54

Verified by: M B Blankin
Project Officer or Security Officer

Project 2.4
1 December 1954

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ENCLOSURE I

#0011640

WIGWAM REPORTS

No change except change publication of Project 2.4 Concept to 1 April 1955.

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